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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,731

12/20/2005

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EXAMINER

CHAMBERS, TANGELA T

ART UNIT

PAPER NUMBER

4141

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,731	Applicant(s) BURKERT ET AL.	
	Examiner TANGELA T. CHAMBERS	Art Unit 4141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>December 20, 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the preliminary amendment filed on 12/20/2005.
2. Claims 1-10 have been canceled.
3. Claims 11-19 have been added.
4. Claims 11-19 are pending.

Priority

5. If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 119(e), a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Information Disclosure Statement

6. The IDS filed on December 20, 2005 has been acknowledged by the examiner.

Drawings

7. Figure 2 is objected to because the reference characters 1-6 do not contain labels. The labels are needed in order to clearly identify the components of the

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diagram. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

9. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Data1, TFCI and Data2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the

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filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

10. The claims are objected to because of the following informalities:

Claim 15, line 3, the phrase "from the terminal and a respective base station" should be rewritten as "from the terminal to the respective base station".

Claim 18, lines 13-14, the last two lines of the claim are unclear and should be rewritten to accurately convey the claimed invention.

Appropriate corrections are required.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11-19 are rejected under 35 U.S.C. 101.

Claims 11-17 are rejected under 35 U.S.C. 101 as the claimed invention is directed to non-statutory subject matter. Although claims 11-17 are method claims, they are non-statutory because they do not produce a useful, concrete and tangible result, and are therefore not eligible for patent protection.

Claims 18-19 are rejected under 35 U.S.C. 101 as the claimed inventions are directed to non-statutory subject matter. The claims are non-statutory because they do not produce a useful, concrete and tangible result, and are therefore not eligible for patent protection.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Hottinen et al (Hottinen) (US Patent Publication No. 2002/0012380 A1).

As per claim 18 Hottinen discloses:

- ***A mobile terminal, comprising:*** (Hottinen, Fig. 1B and Page 2, Paragraph [0028]).
- ***an interface for communicating via a plurality of parallel transmission paths to a plurality of base stations;*** (Hottinen, Fig. 2A and Page 4, Paragraph [0054] and Page 7, Paragraph [0090]).
- ***a channel coefficient determination unit, communicatively coupled to the interface for determining channel coefficients for each transmission path;*** (Hottinen, Fig. 2A and Page 6, Paragraph [0076]).
- ***an antenna weighting factor determination unit, communicatively coupled to the channel coefficient determination unit for determining an antenna weighting factor using said channel coefficients;*** (Hottinen, Page 5, Paragraphs [0064]-[0065] and Page 7, Paragraph [0090], "The receiver 220 comprises means 230 for performing measurements on the received signal transmitted via each different transmit antenna path, and means 230, 232 for signalling to the transmitter 200 the weighting coefficient data formed on the basis of the measurements.").
- ***a transmission channel control unit, communicatively coupled to the antenna weighting factor determination unit for determining a transmission quality value for each transmission path, wherein, during the time when the***

antenna weighting factor is being determined, each of the channel coefficients are prioritized used as a respective function of the determined transmission quality value (Hottinen, Page 1, Paragraph [0005] and Page 5, Paragraphs [0064]-[0065], "In block 306, the receiver 220 performs measurements on each received signal 240, 242 that was transmitted via a separate transmit antenna path 214B, 214C. The measurements relate to channel conditions, such as channel parameters, signal reception power, bit error ratio, signal/interference plus noise ratio (SINR), or any other manner in which the channel quality can be measured.").

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hottinen et al (Hottinen) (US Patent Publication No. 2002/0012380 A1) in view of Ari Hottinen (Ari) (US Patent Publication No. 2004/0066754 A1).

As per claim 11, Hottinen discloses:

- **A method for adjusting antenna weighing** (Hottinen, Page 1, Paragraph [0011]) **in a plurality of base stations** (Hottinen, Page 6, Paragraphs [0080]-[0081]) **communicating through a plurality of parallel transmission paths with a terminal**, (Hottinen, Page 3, Paragraph [0038]) **the method comprising the steps of:**
- **determining channel coefficients in the terminal for each transmission path;** (Hottinen, Page 6, Paragraph [0076]).
- **determining an antenna weighing factor in the terminal using said channel coefficients;** (Hottinen, Page 5, Paragraph [0074] and Page 6, Paragraphs [0076]-

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[0078]), Hottinen teaches a receiver determining an antenna weighing factor (weighting coefficient) by incorporating weighting into the received channel coefficients.

- ***determining a transmission quality value for each transmission channel;*** (Hottinen, Page 5, Paragraph [0064] and [0068]).

Hottinen does not specifically disclose:

- ***prioritizing the transmission channels in the terminal, wherein each prioritization is a function of the determined antenna weighing factor and the determined transmission quality value.*** However, Ari in an analogous art discloses the above limitation. (Ari, Abstract, Page 2, Paragraphs [0014]-[0018] and Page 4, Paragraph [0045], "The channel allocator is then able to determine from the received channel information, which channels are the strongest, or which would maximize throughput or transmit efficiency."), Ari teaches a method of prioritizing channels in the terminal based on the antenna weighting and transmission quality. In using Ari's method, the strongest channels are allocated while the weakest (those with poor signal quality) are not.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ari into the method of Hottinen to prioritize the transmission channels in the terminal. The modification would be obvious because one of ordinary skill in the art would want to increase the throughput of a multiuser system with multiple transmitters in order to improve channel allocation. (Ari, Page 2, Paragraph [0013]).

As per claim 12, the rejection of claim 11 is incorporated and Ari further discloses:

- ***wherein, during the step of determining the antenna weighing factor, only the channel coefficients having a transmission quality value above a predetermined limit value are used.*** (Ari, Abstract, Page 5, Paragraph [0064] and Page 6, Paragraphs [0077]-[0079], "In another embodiment according to the present invention, if the channel quality measure or SIR.sub.m is relatively low and there is a

good chance that there might be many channels which can support the required CQI value of a user or in fact do better, then the mobile station can for example transmit two CQI values, i.e. CQI.sub.1 and CQI.sub.2, to the base station.”), Ari teaches the use of a channel coefficient (channel impulse response) to calculate the weighting factor. If it is determined that the CQI (Channel Quality Indicator) value - based on the calculated weighting factor - is too low, then the channel is not used.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ari into the method of Hottinen to only use channel coefficients with a transmission quality above a predetermined limit. The modification would be obvious because one of ordinary skill in the art would want to optimize channel selection based on channel impulse response and reduce interference. (Ari, Page 6, Paragraph [0079]).

As per claim 13, the rejection of claim 11 is incorporated and further Hottinen discloses:

- ***wherein, a weighting is applied to the channel coefficients in direct or inverse proportion to the transmission quality value of the transmission channel.***

(Hottinen, Page 5, Paragraphs [0069]-[0072], “When the quality value of signalling falls below a predetermined threshold value, the weighting coefficients are not changed.

Correspondingly, when the quality value of signalling exceeds a predetermined threshold value, the weighting coefficients are changed.”), Hottinen teaches weighting in direct proportion to the quality value of the transmission channel.

As per claim 14, the rejection of claim 11 is incorporated and further Hottinen discloses:

- ***wherein the transmission quality value is determined using one of a bit error rate, a frame error rate, a transmission power value, and a received power value.*** (Hottinen, Page 5, Paragraph [0064]).

As per claim 15, the rejection of claim 11 is incorporated and further Hottinen discloses:

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- ***wherein the transmission quality value is a measure of the transmission quality of an uplink channel from the terminal and a respective base station.***

(Hottinen, Page 5, Fig. 3B and Paragraph [0068], “Branch B leads to block 310, where the transmitter 200 forms a quality value for the weighting coefficient data signalling it has received.”).

As per claim 16, the rejection of claim 15 is incorporated and further Hottinen discloses:

- ***wherein, in order to determine the transmission quality value of the uplink channel, the terminal determines a feedback error rate by checking the respective antenna weighting factor set by the base station.*** (Hottinen, Figs. 3A – 3B and Pages 4-5, Paragraphs [0060]-[0064], “In block 302, the transmit power of the signals to be transmitted via the different transmit antenna paths 214B, 214C is weighted in the transmitter 200 with respect to one another by means of changeable weighting coefficients w determined specifically for each transmit antenna path 214B, 214C. In block 304, the receiver receives the signal.”), Hottinen teaches that the receiver performs measurements on the weighted signal it receives from the base station in order to determine transmission quality.

As per claim 19, the rejection of claim 18 is incorporated; however, Hottinen does not specifically disclose:

- ***further comprising a prioritization unit that uses the transmission quality values to determine prioritized weighting factors for each base station.*** However, Ari in an analogous art discloses the above limitation. (Ari, Abstract and Page 2, Paragraphs [0014]-[0022] and Page 4, Paragraph [0045], “[T]he mobile station having: circuitry for determining a characteristic for each communication resource; selection circuitry for selecting a set of weighting factors to be applied to the corresponding transmitters based on the communication resource characteristics; and calculation circuitry for determining for each communication resource a quality indication based on the selected weighting factors.”), Ari teaches a wireless device with circuitry for prioritizing weighting factors based on the transmission quality of the base station.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ari into the apparatus of Hottinen to have a mobile terminal with the ability to prioritize the weighting factor for each base station based on the transmission quality. The modification would be obvious because one of ordinary skill in the art would want to increase the throughput of a multiuser system with multiple transmitters in order to improve channel allocation. (Ari, Page 2, Paragraph [0013]).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hottinen et al (Hottinen) (US Patent Publication No. 2002/0012380 A1) in view of Ari Hottinen (Ari) (US Patent Publication No. 2004/0066754 A1) and in further view of Walton et al (Walton) (US Patent Publication No. 2003/0112880).

As per claim 17, the rejection of claim 15 is incorporated; however, neither Hottinen nor Ari specifically disclose:

- ***wherein the terminal determines a transmission quality value for the uplink channel using transmission power request signals transmitted from the base station.*** However, Walton in an analogous art discloses the above limitation. (Walton, Page 2, Paragraphs [0028]-[0029], Page 16, Paragraph [0202] and Page 17, Paragraphs [0213], "The power control information may include a single bit for each transmission channel to indicate a request for either more power or less power, or it may include multiple bits to indicate the magnitude of the change of power level requested."), Walton teaches that the receiver determines the link conditions based on the channel state information it receives from the base station.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Walton into the method of Hottinen and Ari to determine transmission quality for the uplink based on transmission power request signals transmitted from the base station. The modification would be

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obvious because one of ordinary skill in the art would want to use the power control information to determine which transmission channels should be selected and what power to use for each channel. (Walton, Page 16, Paragraph [0202]).

Conclusion

14. The prior art not relied upon but considered pertinent to applicant's disclosure is made of record and listed on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TANGELA T. CHAMBERS whose telephone number is 571-270-3168. The examiner can normally be reached Monday through Thursday, 8:30am-6pm Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chameli Das, can be reached at 571-270-1392. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tangela T. Chambers

Patent Examiner

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March 19, 2008

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/CHAMELI C. DAS/

Supervisory Patent Examiner, Art Unit 4141